Emergency Data Exchange Language (EDXL) Distribution Element

draft 5/2/05

This draft describes a standard message distribution framework for data sharing among emergency information systems using the XML-based Emergency Data Exchange Language (EDXL). This format may be used over any data transmission system, including but not limited to the SOAP HTTP binding.

The EDXL Distribution Element

The <Distribution> element asserts the originator's intent as to the dissemination of that particular message or set of messages.

> Note that use of the <Distribution> element does not guarantee that all network links and nodes will implement the asserted dissemination policy or that unintended disclosure will not occur. Where sensitive information is transmitted over untrusted networks, it should be encrypted in accordance with the Web Services Security (WSS) standard <http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-soap-message-security-1.0.pdf> with any updates and errata published by the OASIS Web Services Security Technical Committee <http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=wss>), or some other suitable encryption scheme.

The EDXL Distribution Element (DE) comprises a <Distribution> element as described hereafter, optional <targetArea> elements describing geospatial or political target area for message delivery, and a set of <messageElement> elements each containing specific information regarding a particular item of content, which it includes within a <contentObject> structure. The included content may be any XML or other file or document.

The <Distribution> block may be used without content to form the body of a routing query to, or response from, a directory service.

Figure 1: Data Model of EDXL Distribution Element

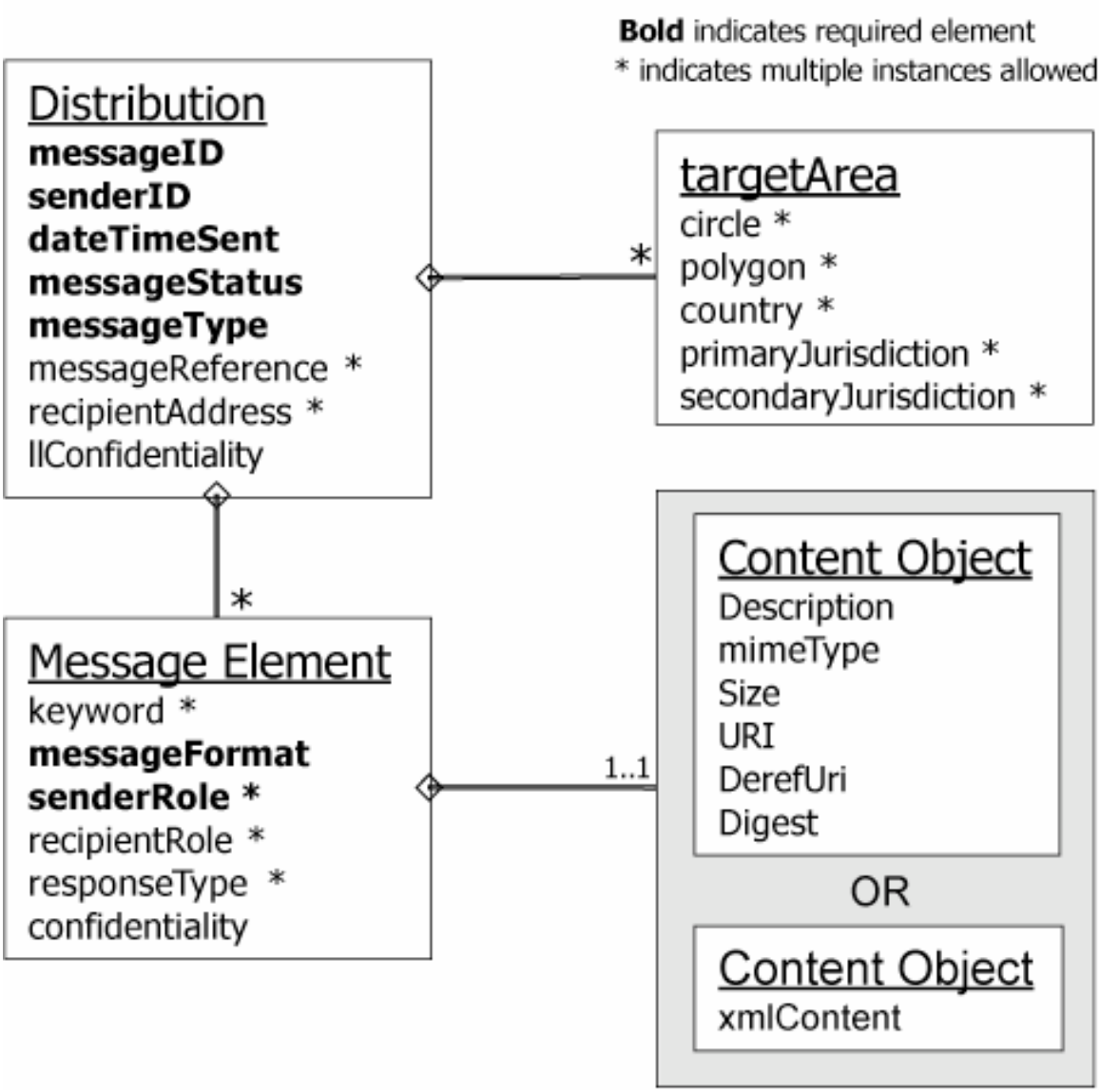

Table 1: Distribution Element		
Name	**Qty**	**Significance and Values**
<distribution>	1	The container element for the distribution element. May include <targetArea> and <messageElement> blocks.
<messageID>	1	An identifier string for this message, assigned by the sender to be unique for that sender.
<senderID>	1	A unique identifier for the sender in the form *user@hostname*, with uniqueness of the *hostname* guaranteed through use of the Internet Domain Name System, and uniqueness of the *user* name enforced by the domain owner.
<dateTimeSent>	1	The date and time the message was sent, in the ISO-8601 format for the XML DateTime data type, e.g.: `2004-08-01T16:49:00-07:00`
<messageStatus>	1	The actionability of the message. Value must be one of: **Actual** – "Real-world" information for action **Exercise** – Simulated information for exercise participants **System** – Messages regarding or supporting network functions **Test** – Discardable messages for technical testing only
<messageType>	1	The function of the message. Value must be one of: **Report** – New information regarding an incident or activity **Update** – Updated information superceding a previous message **Cancel** – A cancellation or revocation of a previous message **Request** – A request for resources, information or action **Response** – A response to a previous request **Dispatch** – A commitment of resources or assistance **Ack** – Acknowledgement of receipt of an earlier message **Error** – Rejection of an earlier message (for technical reasons)
<messageReference>	0-n	The messageID and senderID of the referenced previous message, concatenated with a ":" between (should appear at least once in all messageTypes except "Report".)
<recipientAddress>	0-n	A specific address for an individual recipient in the form of a Uniform Resource Indicator (URI).
<llConfidentiality>	0-1	Lowest level confidentiality of all possible combinations of included Message Elements. If this element is not present, all message contents are assumed to be unclassified and not sensitive. If any of the Message Elements within this Distribution Element assert a <confidentiality> value, this element MUST be present.

<targetArea>	0-n	The container element for geospatial or political-area targeting of the message. Contains elements as described in Table 2, below. Multiple <targetArea> blocks may appear in a single <distribution> element, in which case the target area for the current message is the union of all areas described in the various <targetArea> structures.
<messageElement>	0-n	The container element for message content. Contains elements as described in Table 3 below.

Table 2: <targetArea> Child Elements

Name	Qty	Significance and Values
<circle>	0-n	An enclosed area within a given radius around a geographic point, represented in the form "*latitude*,*longitude radius*". The central point is represented per the specification for <site>, while the space-separated *radius* value is expressed in kilometers. Example: `38.26295,-122.07454 15`
<polygon>	0-n	An enclosed geographic area within a simple closed polygon defined by an ordered set of vertices. Represented by a space-delimited series of *latitude*,*longitude* pairs, with the last pair identical to the first. Example: `42,-124.2102 42,-120.1 39,-120 35.0,-114.6328 34.35,- 120.4418 38.9383,-123.817 42,-124.2102`
<country>	0-n	An ISO 3166-1-alpha-2 two-letter country code.
<primaryJurisdiction>	0-n	An ISO 3166-2 code for a state, province, territory or other primary administrative subdivision. (In the United States, this is equivalent to prefixing the U.S. Postal Service two-letter state abbreviation with "US-"; e.g, "US-VA" for Virginia.)
<secondaryJurisdiction>	0-n	In the United States, a five-digit FIPS 6-4 code for a county, parish, borough (Alaska) or independent city, including the two-digit state/territory prefix. (E.g., "51099" for King George County, Virginia.) In other countries the locally accepted code for secondary political jurisdictional elements.

Table 3: <MessageElement> Child Elements		
Name	**Qty**	**Significance and Values**
<keyword>	0-n	Any value from a discrete managed list, used to inform message routing decisions, in the form: <keyword> <valueListUrn>*valueListUrn*</valueListURN> <value>*value*</value> </keyword> where the content of "valueListUrn" is the Uniform Resource Name of a published list of values and definitions, and the content of "value" is a string (which may represent a number) denoting the value itself (e.g., valueListUrn= "http://www.dhs.gov/NiemCurrentIncidents" and value="12345", or valueListUrn= "http://www.eic.org/EventType" and value="AMBER Alert" Examples of things <keyword> might be used to describe include event type, event etiology and incident ID, response type. Multiple instances MAY occur within a single <messageElement> block.
<keyXmlContent>	1-1	A container element for separately namespaced content from the valid XML document contained within an xmlContent element within the current message element block. The URI of the schema for the included xml content MUST appear as a default namespace attribute in this tag, e.g., …. If no xmlContent element is present, an empty <keyXmlContent> tag MAY be used to identify the type of any XML content associated with this <messageContent> block (e.g., uu encoded XML within a derefUri element).
<senderRole>	0-n	Any value from a discrete managed list, used to inform message routing decisions by describing the functional role of the sender, in the form: <senderRole> <valueListUrn>*valueListUrn*</valueListURN> <value>*value*</value> </senderRole> where the content of "valueListUrn" is the Uniform Resource Name of a published list of values and definitions, and the content of "value" is a string (which may represent a number) denoting the value itself (e.g., valueListUrn= "http://www.dhs.gov/NiemAgencyType" and value="Fire Department".) Multiple instances MAY occur within a single <messageElement> block.

<recipientRole>	0-n	Any value from a discrete managed list, used to inform message routing decisions by describing the functional role of the recipient, in the form:
		
		`<recipientRole>`
		`  <valueListUrn>`*`valueListUrn`*`</valueListURN>`
		`  <value>`*`value`*`</value>`
		`</recipientRole>`
		
		where the content of "valueListUrn" is the Uniform Resource Name of a published list of values and definitions, and the content of "value" is a string (which may represent a number) denoting the value itself (e.g., valueListUrn= "http://www.dhs.gov/`NiemRoleType`" and value="`ICS Operations Branch `".)
		
		Multiple instances MAY occur within a single <messageElement> block.

<confidentiality>	0-1	Special requirements regarding confidentiality of the content of this <messageElement>.
<contentObject>	0-1	Container element for the actual message content. That content MAY be either a separately-namespaced XML document or some item of non-XML content as described in Table 4, below. This element MAY be omitted if the Distribution Element is used in a query to, or a response from, a directory service; otherwise this element MUST be present.

Table 4: <contentObject> Child Elements (for non-XML content)

Name	Qty	Significance and Values
<contentDescription>	1	The human-readable text describing the content type and significance, such as "Map of affected area." or "Photo of missing child." of the content file.
<mimeType>	1	MIME content type and sub-type as described in **[RFC 2046].**
<size>	0-1	Approximate size of the content item (in its un-encoded form) in bytes.
<Uri>	0-1	Either a full absolute URI, typically a Uniform Resource Locator, that can be used to retrieve the resource over the Internet, or a relative URI naming the file represented in the <derefUri>.
<derefUri>	0-1	The base-64 encoded data content. MAY be used either with or instead of the <uri> element in contexts where retrieval of a resource via a URI is not feasible.
<digest>	0-1	The digital digest ("hash") of the content item calculated using the Secure Hash Algorithm (SHA-1) per **[FIPS 180-2]**

Appendix A: Example of a Distribution Element XML Document

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Appendix B: XML Schema for the Distribution Element

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